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PALMER & DODGE, LLP
KATHLEEN M. WILLIAMS
111 HUNTINGTON AVENUE
BOSTON, MA 02199

EXAMINER
SULLIVAN, DANIEL M

ART UNIT	PAPER NUMBER
1636	14

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/963,803	RANCE ET AL.	
	Examiner	Art Unit	
	Daniel M Sullivan	1636	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 6-42* is/are rejected.

7)☐ Claim(s) *5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 September 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *9* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

This is the First Office Action on the Merits of the application filed 26 September 2001 as a continuation of international application PCT/IB00/00370 filed 5 October 2000, which claims benefit of French patent application 99/03925 filed 29 March 1999. The Preliminary Amendments filed 20 December 2001, 8 May 2002 and 23 August 2002 have been entered. Claims 1-42 are pending in the application.

Election/Restrictions

Applicant's election with traverse of Group IV in Paper No. 13, filed 27 March 2003, is acknowledged. The traversal is on three ground(s).

First, Applicant argues that the promoters which have been placed in Groups IV and VI overlap in the specific sequence (as2-as2-as1) of functional elements. Therefore a search of this sequence would encompass all of the promoters of Groups IV and VI. Applicant suggests that this subset of promoter sequences can then be searched for promoters comprising the additional elements that distinguish the two Groups. Likewise, Applicant argues the claims have been placed into identical class and subclass and thus have not acquired a separate status in the art, and no evidence has been provided to show that any of the inventions of Groups I-VI would necessitate a search in an area where no art pertinent to the other Groups exists. This has been fully considered but is not found persuasive because each of the groups encompass subject matter that cannot be searched coextensively. Each of the Groups is directed to an explicitly identified nucleic acid sequence. Although these sequences comprise common subcombinations, they are distinct combinations and a search for a nucleic acid comprising the limitations of

Group IV (i.e., each of the subcombinations in the order set forth as well as any intervening sequence, which may or may not be common to the nucleic acids in other Groups) clearly would not encompass a nucleic acid comprising the limitations of Group VI, because the number and order of the subcombinations is different. As the sequences cannot be searched coextensively, each represents an additional burden and thus restriction is proper according to the requirements of MPEP 808.02(C).

Applicant further argues that, according to MPEP 803.04, the PTO is willing to examine up to 10 distinct nucleic acid sequences in a given application. Applicant again asserts that because the sequences of Groups IV and VI are related, it would not place an undue burden on the Examiner to search the promoter sequences of Groups IV and VI in a single application. This argument is not persuasive because, for the reasons set forth in the previous Office Action, the promoter sequences of Groups IV and VI, as well as groups I-III and V, are distinct inventions, and for the reasons set forth above, the search of each additional invention places an additional and undue burden on the Office.

The requirement is still deemed proper and is therefore made FINAL.

Upon further consideration of the claims, it is apparent that, in addition to claims 1, 6 and 23, claims 2, 8 and 9 link(s) inventions I-VI. The restriction requirement among the linked inventions is subject to the nonallowance of the linking claim(s), claims 1, 2, 6, 8, 9 and 23. Upon the allowance of the linking claim(s), the restriction requirement as to the linked inventions shall be withdrawn and any claim(s) depending from or otherwise including all the limitations of the allowable linking claim(s) will be entitled to examination in the instant application. Applicant(s) are advised that if any such claim(s) depending from or including all

the limitations of the allowable linking claim(s) is/are presented in a continuation or divisional application, the claims of the continuation or divisional application may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application. Where a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. *In re Ziegler*, 44 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

The promoters set forth as MPr1116 (SEQ ID NO: 3), MPr1117 (SEQ ID NO: 4), MPr1146 (SEQ ID NO: 5), MPr1154 (SEQ ID NO: 7), MPr1147 (SEQ ID NO: 6), MPr1164 (SEQ ID NO: 21), MPr1167 (SEQ ID NO: 23) MPr1168 (SEQ ID NO: 24) and MPr1169 (SEQ ID NO: 25) are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Priority

Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d) based upon an application filed in France on 29 March 1999. A claim for priority under 35 U.S.C. 119(a)-(d) cannot be based on said application, since the United States application was filed more than twelve months thereafter.It is additionally noted that applicant has not filed a certified copy of the French application as required by 35 U.S.C. 119(b).

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means"

and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it contains legal phraseology.

Correction is required. See MPEP § 608.01(b).

The disclosure is additionally objected to because of the following informalities:

The specification contains several trademark terms (e.g., "CONCERT" page 38, line 20; "QIAQUICK" page 40, line 6; and "DOMESTOS" page 49, line 2 and 3). Trademarks should be identified by capitalizing each letter of the mark (in the case of word or letter marks) or otherwise indicating the description of the mark (in the case of marks in the form of a symbol or device or other nontextual form; see MPEP §608.01(v).

The Brief Description of the Figures does not match the drawings in that the Figures are identified using Arabic numerals in the drawings and Roman numerals in the Brief Description.

Appropriate correction is required.

Claim Objections

Claims 4, 5, 16, 21-26, 30, 31 and 40-42 are objected to because of the following informalities:

Claims 4, 5, 21-26 and 40-42 recite the abbreviation for sequence identifier number as "SEQ ID No.". The proper format for the abbreviation is "SEQ ID NO:".

Claims 4, 16, 21 and 30 contain editor's markings. A clean copy of the claims should be provided in reply to this office action.

Claim 31 is objected to under 37 CFR§1.75(c) as being in improper form because a multiple dependent claim cannot depend from another multiply dependent claim. See MPEP §§608.01(n).

Claim 24 is also objected to because "sequence" in line 1 is misspelled.

Appropriate correction is required.

Applicant is advised that should claim 23 be found allowable, claim 40 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP §§706.03(k).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-4, 6-17, 19-21, 27 and 29-39, are rejected under 35 U.S.C.§112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one

skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states that "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116).

The instant claims 1, 3, 4, 11-17, 19, 27 and 29-39 are directed to a chimeric expression promoter; an expression cassette, plant and cell comprising said chimeric promoter; and a method of using said chimeric promoter wherein the promoter comprises a plant promoter wherein a vascular expression promoter region is replaced with a nucleic acid sequence derived from a second plant promoter comprising a plant green tissue expression promoter region. Thus the promoter of the claims encompasses a genus of any and all chimeric promoters wherein the vascular expression promoter region of any plant promoter comprising said vascular expression promoter region is replaced by the green tissue expression promoter region from any plant promoter comprising said green tissue expression promoter region. In addition, claims 6-17 are directed to a chimeric expression promoter comprising an exogenous element which promotes expression in plant green tissues. Thus the claims encompass any promoter comprising any and all exogenous elements which promote expression in plant green tissues.

Finally, the promoter of claims 1-4, 11-17, 19-21, 27 and 29-39, beyond encompassing any and all chimeric promoters wherein the vascular expression promoter region of any plant

promoter comprising said vascular expression promoter region is replaced by the green tissue expression promoter region from any plant promoter, encompasses chimeric promoters wherein the components combined to make up the chimeric promoter are "derived from" naturally occurring plant promoters. A "derived nucleic acid sequence" is defined on page 2 of the specification as, "deriving directly or indirectly from the sequence to which it refers, for example, by substitution, deletion, addition, mutation, fragmentation, and/or synthesis of one or more nucleotides". Therefore, the claims encompass any chimeric promoter resulting from essentially unlimited modification of some starting promoter sequences.

The written description requirement for a claimed genus may be satisfied through sufficient description of a representative number of species, by actual reduction to practice, reduction to drawings, or by disclosure of relevant identifying characteristics (see MPEP 2163 (ii)). In the instant case, the specification provides a detailed description of a single species of the chimeric promoter wherein the vascular expression promoter from the CoYMV intergenic region promoter is replaced with the green tissue promoter region from the CsVMV intergenic region promoter (see especially Example 2, beginning on page 21). Beyond that, the description of the chimeric promoter, and the promoters from which the chimeric promoter is constructed, is limited to a recitation of function with no corresponding structural characteristics that would identify promoters having the recited function.

An adequate written description of a DNA requires more than a mere statement that it is part of the invention and reference to a potential method for isolating it; what is required is a description of the DNA itself. It is not sufficient to define DNA solely by its principal biological property (i.e., it is a chimeric promoter wherein a vascular expression promoter region is

replaced with a nucleic acid sequence derived from a second plant promoter comprising a plant green tissue expression promoter region) because disclosure of no more than that, as in the instant case, is simply a wish to know the identity of any DNA with that biological property. Also, naming a type of material generically known to exist, in the absence of knowledge as to what that material consists of, is not a description of that material. Thus, claiming all DNA's that achieve a result without defining what means will do is not in compliance with the description requirement. Rather, it is an attempt to preempt the future before it has arrived. (See *Fiers v. Revel*, 25 USPQ2d 1601 (CA FC 1993) and *Regents of the Univ. Calif. v. Eli Lilly & Co.*, 43 USPQ2d 1398 (CA FC, 1997)). With respect to the method claims and claims directed to combinations comprising the promoters, adequate description of the methods and combinations first requires an adequate description of the materials, i.e. specific DNA sequences, which provide the means for practicing or making the invention.

In view of these considerations, a skilled artisan would not have viewed the teachings of the specification as sufficient to show that the applicant was in possession of the claimed invention commensurate to its scope because it does not provide adequate written description for the broad class of chimeric promoters encompassed by the chimeric promoter of the claims. Therefore, only the described the chimeric promoter wherein the vascular expression promoter from the CoYMV intergenic region promoter is replaced with the green tissue promoter region from the CsVMV intergenic region promoter meet the written description provision of 35 U.S.C. §112, first paragraph.

Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

Claims 1-4, 6-17, 19-21, 27 and 29-39 are rejected under 35 U.S.C. §112, first paragraph, because the specification, while being enabling for the chimeric promoter wherein the vascular expression promoter from the CoYMV intergenic region promoter is replaced with the green tissue promoter region from the CsVMV intergenic region promoter, does not reasonably provide enablement for any and all chimeric promoters wherein the vascular expression promoter region of any plant promoter comprising said vascular expression promoter region is replaced by the green tissue expression promoter region from any plant promoter comprising said green tissue expression promoter region. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy the enablement requirement and whether any necessary experimentation is "undue." These factors include, but are not limited to: (a) the nature of the invention; (b) the breadth of the claims; (c) the state of the prior art; (d) the amount of direction provided by the inventor; (e) the existence of working examples; (f) the relative skill of those in the art; (g) whether the quantity of experimentation needed to make or use the invention based on the content of the disclosure is "undue"; and (h) the level of predictability in the art (MPEP 2164.01 (a)).

Nature of the invention and breadth of the claims: The nature and breadth of the claimed invention is set forth herein above. To summarize, the claims encompass combinations comprising and methods of using a broad genus of chimeric promoters which can be derived

from any vascular expression promoter region and plant green tissue expression promoter by the process of substitution, deletion, addition, mutation, fragmentation, and/or synthesis of one or more nucleotides, or by some other unidentified process.

State of the prior art: The art, exemplified by Lewin, *Genes III*, (1987) John Wiley & Sons, Inc., teaches that Eukaryotic promoters are extremely complex structures comprising a diverse set of regulatory regions of widely varied structure. The art further teaches that the regulatory regions comprise regulatory elements which are responsible for promoter function (see especially the sections entitled "Promoters Include Consensus Sequences" (beginning page 195) and "Transcription Factors Recognize Particular consensus Sequences" (beginning page 211). Thus the art teaches that the functional characteristics to which the promoter of the claims is limited are dictated by regulatory elements within the promoter having defined sequence.

Amount of direction provided by the inventor and existence of working examples: The instant specification identifies a single example of promoter structures having the function of vascular expression promoter region and plant green tissue expression promoter and identifies elements within these promoters that are related to their function. However, the specification is silent with regard to the structural features of other promoters having the recited function and does not teach how derivatives of the described CoYMV and CsVMV intergenic region promoters could be made such that the promoter retains activity.

Relative skill of those in the art and quantity of experimentation needed to make or use the invention: The level of skill in the art is high. However, in order to make and use the full scope of the claimed invention, the skilled artisan would have to construct a widely divergent genus of chimeric promoters without teachings from the specification or prior that would allow

for the identification of promoters having the functional characteristics set forth in the claims by any means other than random trial and error experimentation. Furthermore, because the specification and prior art does not teach how the promoters of the claims could be derivatized while maintaining function, the skilled artisan would again have to resort to blind trial and error experimentation to make and test each and every possible derivative for function to identify the embodiments encompassed by the claims. Given the enormous scope of the claims, the amount of experimentation required would clearly be undue.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 4, 8, 11-14, 17, 18, 21-42 rejected under 35 U.S.C.§112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 4, 11-13, 17, 18, 21, 23, 24 and 34, and claims 25-33, 35-39 and 41 as they depend from claim 23, are indefinite in the use of the indefinite pronoun "it". As the pronoun could refer to any preceding limitation, the antecedent basis of the limitation is unclear.

Claim 8 is indefinite in the recitation of "said promoter of viral origin". There are two distinct promoters of viral origin in claim 7, from which claim 8 depends. The antecedent basis of the "promoter of viral origin" in claim 8 is therefore unclear.

Claims 27-29 and 42, and claims 30-32 as they depend from claim 29, are indefinite in being directed to an "isolated promoter or promoter nucleic acid sequence". It would appear from the definition on page 2 of the specification that the terms are synonymous. The claims has

been examined with the assumption that a vector comprising a promoter or promoter nucleic acid sequence having the limitations set forth in the body of the claim are the same. However, clarification is required.

Claims 15 and 16 are indefinite in their recitation of "said 'as1 like', 'as1', and 'as2' boxes". There is no antecedent basis for the limitation in claims 1 or 6, from which the claims depend.

Claim 22 is indefinite in being directed to an expression cassette of claim 19 wherein the first or second promoter from which the promoter of the expression cassette is constructed is selected from the group consisting of SEQ ID NO: 3-7 and 19-25. As SEQ ID NO: 3-7 and 19-25 are already chimeric promoters, the claim is directed to an expression cassette comprising a promoter constructed from the chimeric promoters disclosed in the application. This would seem inconsistent with the teachings of the specification and the limitations of other claims. Clarification is required.

Claims 26 and 42 are indefinite in the recitation of "said sequence" in line 3. Although the term "sequence" appears in the context of "an isolated promoter nucleic acid sequence" in line 2, it would seem that "said sequence" in line 3 actually refers to the sequence of the building block and not the promoter. Therefore, the antecedent of "said sequence" in line 3 is unclear.

Claim 41 is indefinite in the recitation of "said first or second sequence" bridging lines 1 and 2. There is no antecedent basis for the limitation in claim 23, from which claim 41 depends.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 42 is rejected under 35 U.S.C.§102(b) as being anticipated by Verdaguer *et al.* (WO 97/48819).

The claim is directed to a directional deoxynucleotide building block for the construction of a chimeric expression promoter according to claims 1, 6 or 23 wherein the sequence is SEQ ID NO: 10. Nucleotides 43-104 of SEQ ID NO: 5 disclosed in Verdaguer *et al.* are 100% identical to the instant SEQ ID NO: 10. As the nucleic acid of Verdaguer *et al.* could be used as a directional deoxynucleotide building block for the construction of a chimeric expression promoter according to the instant claims 1, 6 or 23, SEQ ID NO: 5 of Verdaguer *et al.* anticipates the instant claim 42.

Allowable Subject Matter

Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel M Sullivan whose telephone number is 703-305-4448. The examiner can normally be reached on Monday through Friday 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Remy Yucel, Ph.D. can be reached on 703-305-1998. The fax phone numbers for the

organization where this application or proceeding is assigned are 703-746-9105 for regular communications and 703-746-9105 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0196.

dms
May 28, 2003

JAMES KETTER
PRIMARY EXAMINER